AMENDMENTS TO THE CLAIMS

1-76. Canceled

77. (New) A sensor for use in measuring a concentration of an analyte in a bodily fluid, the sensor comprising:

a sensor body comprising a sensing region adapted for transport of analytes between the sensor and the bodily fluid;

an electrochemically reactive surface on the sensor body comprising a first electrode and a second electrode, wherein the second electrode has a greater electrochemically reactive surface area than the first electrode;

a multi-region membrane affixed to the sensor body and covering the electrochemically reactive surface, wherein the multi-region membrane comprises an enzyme domain and an electrolyte domain; and

a mechanical anchoring mechanism which aids in immobilizing the sensor in a subcutaneous space.

78. (New) The sensor of claim 77, wherein the mechanical anchoring mechanism comprises a surface topography.

79. (New) The sensor of claim 77, wherein the surface topography is a helical surface topography.

80. (New) The sensor of claim 77, wherein the mechanical anchoring mechanism comprises a gradually changing diameter.

81. (New) The sensor of claim 77, wherein the sensor comprises a lateral curved surface that creates generally uniform forces towards the sensing region.

82. (New) The sensor of claim 77, wherein the mechanical anchoring mechanism comprises an anchoring material that encircles the sensor body.

83. (New) The sensor of claim 77, wherein the sensing region encircles the sensor body.

84. (New) The sensor of claim 77, wherein the sensor comprises a porous silicone.

85. (New) The sensor of claim 77, wherein the electrochemically reactive surface comprises a plurality of electrochemically reactive surfaces that are spread apart.

86. (New) The sensor of claim 77, wherein the sensor has a curvature that induces a firm, substantially motion-free hold of the sensor body within a host.

87. (New) The sensor of claim 77, wherein the sensor is expandable, and can be inserted into a subcutaneous space in minimally invasive manner in its collapsed state.

88. (New) The sensor of claim 87, wherein the minimally invasive manner is through a catheter.

89. (New) The sensor of claim 87, wherein the sensor is less than or equal to about 3 mm in diameter.

90. (New) The sensor of claim 87, wherein the sensor comprises a guide wire extending through the sensor.

91. (New) The sensor of claim 77, wherein the sensor is folded for insertion into a host using a catheter.

92. (New) The sensor of claim 77, wherein the sensor is configures to self-expand and to memorize its shape long term.

93. (New) The sensor of claim 77, wherein at least one of the first electrode and the second electrode is connected to an electronics body via a flexible wire.

94. (New) The sensor of claim 77, wherein the sensor body is connected by a tether to an electronics body.

95. (New) The sensor of claim 94, wherein the tether is formed from a polymeric material or a biocompatible material.

96. (New) The sensor of claim 94, wherein the tether comprises a conductive wire, and wherein the wire is encased in a polymeric material or a biocompatible material.

97. (New) The sensor of claim 94, wherein the tether connects an electronics portion within the electronics body to an electronics portion of the sensor body.

98. (New) The sensor of claim 97, wherein the electronics portion of the sensor body comprises at least one of the first electrode and the second electrode.

99. (New) The sensor of claim 77, further comprising an electronics body, wherein a majority of a mass of the sensor comprises the electronics body, and wherein the electronics body is remote from the sensor body.

100. (New) The sensor of claim 77, wherein the sensor comprises an electronics body, and wherein the sensor body is independently inserted into a host in a minimally invasive manner and is operatively connected to the electronics body.

101. (New) The sensor of claim 77, wherein the sensor comprises electronics, and wherein at least some of the electronics are housed within the sensor body.

102. (New) The sensor of claim 77, wherein the sensor comprises a curved surface having a radius of curvature in the lateral direction of about 0.5 mm or less.

103. (New) The sensor of claim 77, wherein the sensor comprises a curved surface having a radius of curvature in the longitudinal direction of greater than about 10 cm.

104. (New) The sensor of claim 77, wherein the sensor comprises a curved surface having a radius of curvature in the longitudinal direction of from about 0.5 mm to about 10 cm.

105. (New) The sensor of claim 77, wherein the sensor has a geometry that allows for maximal tissue anchoring *in vivo*.

106. (New) The sensor of claim 77, wherein the sensor is flexible.

107. (New) The sensor of claim 77, wherein the sensor is substantially cylindrical.

108. (New) The sensor of claim 77, comprising bumps, dimples, or ridges, and maintaining an overall curvature.

109. (New) The sensor of claim 77, wherein the sensor body comprises an additional curvature that is laser etched into the sensor body to form a final geometric shape.

110. (New) The sensor of claim 77, wherein the sensor body comprises a very smooth, non-reactive biomaterial surface to prevent attachment to a tissue in a host.

111. (New) The sensor of claim 77, wherein from about 5 % to about 95 % of a surface of the sensor body is covered by an anchoring material.

112. (New) The sensor of claim 111, wherein a portion of the sensor body is free of the anchoring material.

113. (New) The sensor of claim 77, wherein a portion of the sensor is covered by an anchoring material, and the anchoring material is in a form of an array of dots or stripes.

114. (New) The sensor of claim 77, wherein the sensor is suitable for implantation in an axillary region.

115. (New) The sensor of claim 77, wherein the sensor is suitable for implantation in a soft tissue of a host.

116. (New) The sensor of claim 77, wherein the sensor comprises a plurality of sensor regions.

117. (New) The sensor of claim 116, wherein the plurality of sensor regions are located on curved portions of the sensor body.

118. (New) The sensor of claim 77, wherein the sensor body is substantially cylindrical defined by a curved lateral surface and two ends, and wherein the sensor region is located on said lateral surface.

119. (New) The sensor of claim 77, further comprising a mechanical anchoring mechanism formed on the sensor body.

120. (New) The sensor of claim 77, wherein the sensor body comprises plastic.

121. (New) The sensor of claim 120, wherein the plastic is selected from the group consisting of thermoplastic and thermoset.

122. (New) The sensor of claim 77, further comprising a porous biointerface material that covers at least a portion of the sensing region.

123. (New) The sensor of claim 77, wherein the sensor is a glucose sensor.